



CMS summer school on

THE COMPLEX MATH OF THE REAL WORLD

A research workshop of the Israel Science Foundation

Technion, July 15-19, 2018

Applied Mathematics is about the development and study of Mathematical frameworks to solve challenging problems in science and engineering. Although these tools and approaches are typically derived within a specific context or problem setup, e.g. phase field models and related interfacial motion, they are often applicable to other problems and sometimes even reveal unexpected connections between different disciplines.

The school aims to provide PhD students in applied Mathematics and related disciplines, as well as researchers, an exposure to various Mathematical approaches to different problems.

During the summer school, four main speakers will deliver a series of lectures or mini-courses on various topics including phase field modeling, gradient flows, partial differential equations, optimal transport, and dynamical systems, and in numerous contexts including complex materials, charge transport, fluid dynamics, coupled oscillators, and more.

Additional speakers will present outreach lectures emphasizing possible applications.

MINI-COURSES:

- *Mathematics of fluid in motion*
Eduard Feireisl, Institute of Mathematics of the Academy of Sciences of the Czech Republic
- *Energetic variational approaches in complex materials*
Chun Liu, Illinois Institute of Technology
- *Optimal transportation between unequal dimensions*
Robert McCann, University of Toronto
- *Synchronization*
Arkady Pikovsky, Universität Potsdam

Organizers: Nir Gavish, Alex Nepomnyashchy, Amy Novick-Cohen and Gershon Wolansky.

Scientific Committee: David Kinderlehrer, Chun Liu, Amy Novick-Cohen and Arkady Pikovsky

